

AMENDMENT TO THE CLAIMS

The listing of the claims will replace all prior listings of claims in the application.

Listing of Claims

1. (Currently Amended) An image display device, comprising:

a plurality of scanning signal lines and a plurality of data signal lines which cross each other;

an electro-optical element, and a switching element and a pixel capacitor which correspond to said electro-optical element, said electro-optical element and corresponding switching element and pixel capacitor being provided in each pixel region surrounded by adjacent two of said plurality of scanning signal lines and adjacent two of said plurality of data signal lines;

a data signal line driving circuit for outputting voltages for ~~gradation~~ display in mutually reverse polarities with respect to a pair of adjacent pixels in a direction of the data signal lines; and

short-circuit means for short-circuiting respective pixel capacitors of said pair of adjacent pixels ~~in a non-selection period directly before a selection-scanning period of a target scanning signal line~~ before applying the voltages for display to a pixel to be scanned first of the pair of adjacent pixels in the direction of the data signal lines when scanning by in switching polarities of the voltages for ~~gradation~~ display.

2. (Original) The image display device as set forth in claim 1, wherein:

said data signal line driving circuit outputs voltages for gradation display in mutually reverse polarities with respect to a pair of pixels adjacent in a direction of said scanning signal lines.

3. (Original) The image display device as set forth in claim 1, wherein:

said data signal line driving circuit outputs voltages for gradation display in mutually reverse polarities with respect to a pair of pixels adjacent in a direction of said data signal lines.

4. (Original) The image display device as set forth in claim 1, wherein said data signal line driving circuit includes:

a positive voltage output section for outputting a positive voltage converted from a data signal;

a negative voltage output section for outputting a negative voltage converted from a data signal; and

a switching section for switching said positive output section and said negative output section between adjacent data signal lines,

wherein said positive voltage output section and said negative voltage output section are used in common in said adjacent data signal lines.

5. (Original) The image display device as set forth in claim 4, wherein:
said positive voltage output section includes a positive polarity D/A converter and an operational amplifier of an N-channel MOS transistor input; and
said negative voltage output section includes a negative polarity D/A converter and an operational amplifier of a P-channel MOS transistor input.

6. (Original) The image display device as set forth in claim 1, wherein:
said data signal line driving circuit outputs voltages for gradation display in mutually reverse polarities with respect to adjacent frames.

7. (Currently Amended) An image display device, comprising:
a plurality of scanning signal lines and a plurality of data signal lines which cross each other;
an electro-optical element, and a switching element and a pixel capacitor which correspond to said electro-optical element, said electro-optical element and corresponding switching element and pixel capacitor being provided in each pixel region surrounded by adjacent two of said plurality of scanning signal lines and adjacent two of said data signal lines;

a data signal line driving circuit for outputting voltages for gradation display in mutually reverse polarities with respect to a pair of adjacent pixels; and

separation means for separating an output stage of said data signal line driving circuit from a data signal line in a first half of a selection-scanning period of each

scanning signal line by a scanning signal line driving circuit, said separation means being provided between said output stage of said data signal line driving circuit and said data signal line,

wherein said data signal line driving circuit outputs voltages for gradation display in mutually reverse polarities with respect to adjacent pixels in a direction of said data signal line; and

said scanning signal line driving circuit carries out a selection-scanning operation by switching polarities of voltages for gradation display, with respect to both of a data scanning signal line to be scanned first and a data scanning signal line to be scanned next of a pair, in a first half of the selection-scanning period of the scanning signal line to be scanned first of the pair.

8. (Currently Amended) An image display device, comprising:

a plurality of scanning signal lines and a plurality of data signal lines which cross each other;

an electro-optical element, and a switching element and a pixel capacitor which correspond to said electro-optical element, said electro-optical element and corresponding switching element and pixel capacitor being provided in each pixel region surrounded by adjacent two of said plurality of scanning signal lines and adjacent two of said data signal lines;

a data signal line driving circuit for outputting voltages for gradation display in mutually reverse polarities with respect to a pair of adjacent pixels; and

separation means for separating an output stage of said data signal line driving circuit from said data signal line in a blanking period directly before a selection-scanning period of each scanning signal line by a scanning signal line driving circuit, said separation means being provided between said output stage of said data signal line driving circuit and said data signal line,

wherein said data signal line driving circuit outputs voltages for gradation display in mutually reverse polarities with respect to adjacent pixels in a direction of said data signal line; and

said scanning signal line driving circuit carries out a selection-scanning operation by switching polarities of voltages for gradation display, with respect to both of a ~~data~~ scanning signal line to be scanned first and a ~~data~~ scanning signal line to be scanned next in a pair, in the blanking period directly before the selection-scanning period of the scanning signal line to be scanned first of the pair.

9. (Original) The image display device as set forth in claim 8, further comprising:
control means for controlling to cut off said separation means in a blanking period at every two horizontal scanning periods, said blanking period being provided directly before the selection-scanning period of the scanning signal line to be scanned first of the pair, and to perform the selection-scanning operation of the target pair of scanning signal lines in the cut-off state of said separation means.

10. (Cancelled)

11. (New) The image display device as set forth in claim 1, wherein:

said short-circuit means carries out selection scanning of respective scanning signal lines of the pair of adjacent pixels in the direction of the data signal lines at the same time to drive the switching elements of the pair of pixels at the same time.

12. (New) An image display device, comprising:

a plurality of scanning signal lines and a plurality of data signal lines which cross each other;

an electro-optical element, and a switching element and a pixel capacitor which correspond to said electro-optical element, said electro-optical element and corresponding switching element and pixel capacitor being provided in each pixel region surrounded by adjacent two of said plurality of scanning signal lines and adjacent two of said plurality of data signal lines; and

a data signal line driving circuit for outputting voltages for display in mutually reverse polarities with respect to a pair of adjacent pixels in a direction of data signal lines,

said scanning signal line driving circuit carries out selection scanning with respect to a scanning signal line of a pixel to be scanned first together with a scanning signal line of a pixel to be scanned next of said pair of adjacent pixels in the direction of data signal lines before applying the voltages for display to the pixel to be scanned first

of said pair of adjacent pixels when scanning in switching polarities of the voltages for display.

13. (New) The image display device as set forth in claim 12, further comprising:
separation means provided between an output stage of the data signal line driving circuit and the data signal line, for electrically separating the output stage from the data signal line,

wherein when said scanning signal line driving circuit carries out selection scanning with respect to the scanning signal line of the pixel to be scanned first together with the scanning signal line of the pixel to be scanned next, said separation means electrically separates the output stage of the data signal line driving circuit from the data signal line.

14. (New) An image display device, comprising:
a plurality of scanning signal lines and a plurality of data signal lines which cross each other;

an electro-optical element, and a switching element and a pixel capacitor which correspond to said electro-optical element, said electro-optical element and corresponding switching element and pixel capacitor being provided in each pixel region in a liquid crystal panel surrounded by adjacent two of said plurality of scanning signal lines and adjacent two of said plurality of data signal lines;

a data signal line driving circuit for outputting voltages for gradation display in mutually reverse polarities with respect to a pair of adjacent pixels; and

short-circuit means for short-circuiting respective pixel capacitors in the liquid crystal panel of said pair of adjacent pixels in a non-selection period directly before a selection-scanning period of a target scanning signal line when scanning by switching polarities of the voltages for gradation display.